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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,677	11/24/2003	Kouichi Meguro	032121	1220
38834	7590	01/13/2006	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP			THOMAS, TONIAE M	
1250 CONNECTICUT AVENUE, NW			ART UNIT	
SUITE 700			PAPER NUMBER	
WASHINGTON, DC 20036			2822	

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/718,677	Applicant(s) MEGURO ET AL.	
	Examiner Toniae M. Thomas	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-21 is/are pending in the application.
- 4a) Of the above claim(s) 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 11, 13, 15, 17, 19 and 21 is/are rejected.
- 7) ☒ Claim(s) 8-10, 12, 16, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/24/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of species 1 of Group II, claims 7-13 and 15-21, in the reply filed on 20 October 2005 is acknowledged. Claim 14 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Drawings

2. Figures 1, 2A-2C, 3A-3B, 4, 5, and 6A-6B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Cobbley et al. (US 6,965,160 B2).

Applicants' admitted prior art discloses a mold method of a substrate sheet material, wherein the method comprises: preparing a substrate sheet material on which a plurality of substrates is formed; mounting a semiconductor chip onto each of the substrates; resin-molding the semiconductor chips all at once; and forming semiconductor packages corresponding to the respective substrates; and individualizing the semiconductor packages (see specification - figs. 1, 2A-2C, 3A-3B and accompanying text).

The admitted prior art lacks anticipation of a circular sheet.

Cobbley et al. (Cobbley) discloses a mold method of a substrate sheet material, wherein the method comprises using a sheet 110 have one of a rectangular shape (fig. 2 and col. 6, lines 15-28) and a circular shape (fig. 3 and col. 6, lines 15-28).

The sheet material of the admitted prior art has a rectangular shape. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to replace the sheet of material of the admitted prior art with a sheet material having a circular shape, as taught by Cobbley, because the circular shaped sheet is more compatible with existing equipment for handling and processing wafers (Cobbley - col. 6, lines 24-28).

5. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Shimizu et al. (US 6,676,885 B2).

Claims 11 and 19 are unpatentable over the admitted prior art, as applied above to claims 7, 13, and 15.

The admitted prior art lacks anticipation of providing at least one through-hole in an area other than an area where the substrates are formed; and introducing a mold resin through the through-hole into a backside of the substrate sheet material opposite to a front side on which the semiconductor chips are mounted so as to form a resin part on the backside.

Shimizu et al. (Shimizu) discloses a molding method, wherein the method comprises: providing at least one through-hole in an area other than an area where a plurality of substrates 12 are formed (fig. 4A and col. 13, line 65 - col. 14, line 10); and introducing a mold resin through the through-hole into a backside of the substrate sheet material opposite to a front side on which the

semiconductor chips are mounted so as to form a resin part on the backside (figs. 4C, 4D and col. 15, lines 56-63).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to introduce a mold resin through a through-hole into a backside of the substrate sheet material opposite to a front side on which the semiconductor chips are mounted so as to form a resin part on the backside, as taught by Shimizu, because in doing so the side and tops of each of the plurality of substrates are completely encapsulated.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Cobbley et al. as applied to claim 15 above, and further in view of Shimizu.

Again, the admitted prior art lacks anticipation of providing at least one through-hole in an area other than an area where the substrates are formed; and introducing a mold resin through the through-hole into a backside of the substrate sheet material opposite to a front side on which the semiconductor chips are mounted so as to form a resin part on the backside.

As explained above, Shimizu discloses a molding method, wherein the method comprises: providing at least one through-hole in an area other than an area where a plurality of substrates 12 are formed (fig. 4A and col. 13, line 65 - col. 14, line 10); and introducing a mold resin through the through-hole into a backside of the substrate sheet material opposite to a front side on

which the semiconductor chips are mounted so as to form a resin part on the backside (figs. 4C, 4D and col. 15, lines 56-63).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the combination of the admitted prior art and Cobbley by introducing a mold resin through a through-hole into a backside of the substrate sheet material opposite to a front side on which the semiconductor chips are mounted so as to form a resin part on the backside, as taught by Shimizu, because in doing so the side and tops of each of the plurality of substrates are completely encapsulated.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admitted prior art in view of Cobbley and Farnworth.

Claim 21 is unpatentable over Applicants' admitted prior art as applied above to claims 7, 13, and 15.

Again, the admitted prior art lacks anticipation of a circular sheet. As explained above, Cobbley discloses a mold method of a substrate sheet material, wherein the method comprises using a sheet 110 have one of a rectangular shape (fig. 2 and col. 6, lines 15-28) and a circular shape (fig. 3 and col. 6, lines 15-28).

The admitted prior art lacks anticipation of immersing the semiconductor manufacturing material (sheet) into a dissolved resin; and curing the dissolved resin. Farnworth discloses a method, which comprises: immersing a

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semiconductor manufacturing material into a dissolved resin (fig. 6 and col. 10, lines 26-30); and curing the dissolved resin (col. 15, lines 36-51).

The sheet material of the admitted prior art has a rectangular shape. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to replace the sheet of material of the admitted prior art with a sheet material having a circular shape, as taught by Cobbley, because the circular shaped sheet is more compatible with existing equipment for handling and processing wafers (Cobbley - col. 6, lines 24-28). Further, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to immerse the semiconductor sheet into a dissolved resin and cure the resin, as taught by Farnworth, because in doing so the side and tops of each of the plurality of substrates are completely encapsulated.

Allowable Subject Matter

8. Claims 8-10, 12, 16, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

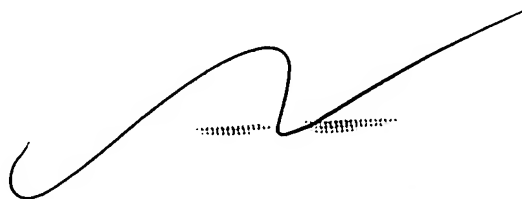
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (571) 272-1846. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMT
09 January 2006

A handwritten signature in black ink, consisting of a large, stylized 'M' followed by a horizontal line and a small flourish.

Mary Wilczewski
Primary Examiner